

Technical Specification Group Core Networks  
Meeting #2, Fort Lauderdale, 2-4 March 1999

**Source:**            **WG CN3 Convenor**  
**Title:**             **Proposed Terms of Reference and**  
                          **Dependencies to Other Groups**  
**Document for:** **Decision**  
**Attention:**       **Agenda item 7.3**

### 1. Terms of Reference

The TSG-N has decided to structure the work into three Working Groups:

- WG1: MM/CC/SM.
- WG2: MAP/CAMEL
- WG3: Interworking with external networks

The UMTS core network shall be based on an evolution of GSM core network for both circuit switched and packet switched services. TSG-N has assigned the following terms of reference to WG3:

- evolving GSM interworking function to UMTS interworking to external networks (assigned to WG3 only)
- evolving GPRS layer 3 protocols (SM, GMM) to UMTS packet services (assigned to WG1, WG2 and WG3 (only related to interworking issues)).

WG3 has taken this as an input and has refined the given general terms of reference to clarify their scope of work as follows:

Generally, the assigned terms of reference imply for WG3 the specification of bearer capabilities for circuit and packet switched data services, and the necessary interworking functions towards both, the UE (user equipment) in the UMTS PLMN and the TE (terminal equipment) in the external network.

Specifically, this work includes the following responsibilities:

- circuit switched (UE <--> 3G-MSC/IWF)
  - layer 1 transport protocols (mainly rate adaptation)
  - layer 2 transport protocols
  - ~~signalling issues (e.g., negotiation of bearer capabilities)~~
  - ~~mapping and negotiation of QoS~~
  - signalling issues (i.e., negotiation and mapping of bearer capabilities and QoS information in the sense of specifying parameters, parameter values and combinations of them, needed to specify services and to enable the 3G-MSC/IWF to select appropriate services towards the fixed network)
- circuit switched (within 3G-MSC/IWF)
  - mapping of signalling information
  - mapping of user data, status & control information
  - mapping of QoS
- circuit switched (3G-MSC <--> fixed network TE)
  - transport protocols

- signalling issues (service setup, negotiation of QoS)
  - packet switched
    - Gi interface
    - ~~GTP (has to be clarified with WG2)~~
    - network interface data to be transported by the GTP
    - packet data protocols (PDPs)
    - services that use PDPs (; e.g., IP, PPP, X.25, OSP)
    - mapping and negotiation of QoS
  - end-to-end interworking for packet and circuit switched services
- Interworking with the following external networks has to be considered:

- PSTN
- N- and B-ISDN
- PDN (IP & X.25)

Interworking between the UTM core network and other core networks of the IMT-2000 family is out of the scope of WG3.

## 2. Dependencies with other groups

### 2.1 TSG internal dependencies

TSG-N WG3 sees dependencies with the following groups:

- TSG-N WG1: Whereas WG1 is responsible for the radio interface layer 3 procedures and protocols, WG3 see their responsibility in defining parameters and combinations of parameter values needed to specify services and to enable the IWF to select an appropriate service towards the fixed network.
- TSG-N WG2: Whereas WG2 is responsible for specifying MAP procedures and operations, WG3 have the responsibility for defining information elements the requires to be transferred by means of the needed MAP procedures.
- TSG-R WG3: This WG provides transmissions means via the Iu reference point, TSG-N WG3 see their responsibility in providing layer 1 (rate adaptation) and layer 2 protocols for data transmission between the UE and the core network.
- TSG-SA WG2: This WG provides an overall architecture of the UMTS system. TSG-N WG3 is responsible for providing details on interworking with external networks based on the concepts provided by TSG-S WG2. TSG-S WG2 give guidance in questions related to the architecture.
- TSG-SA WG1: This WG provides requirements on services. Solutions provided by TSG-N WG3 have to fulfil these requirements. TSG-S WG1 give guidance in questions related to the service requirements.
- TSG-T WG2: This WG is responsible for the specification of terminal services and applications. The close co-operation is needed when protocols between UE and the Core Network are specified. Applications designed by TSG-T WG2 may have impact on network architecture or interworking with external networks.

### 2.2 External dependencies

External dependencies exist with ITU-T and IETF. TSG-N WG3 will not directly liaise with these organisations. A liaison shall only take place via the individual members.

### 3. Specifications

The GSM specifications that should be in the prime responsibility of WG3 are listed in order to give more precise information on the scope of work of WG3:

#### 3.1 Packet switched

- ~~TS 09.60 GPRS Tunnelling Protocol (GTP) across Gn and Gp Interface~~
- TS 09.61 Interworking between the PLMN and PDNs
- TS 07.60 MS Supporting GPRS  
(Terminal related aspects such as AT commands will be moved to 07.07)

#### 3.2 Circuit switched

- TS 03.10 GSM PLMN Interconnection Types
- TR 03.43 Support of Videotex
- TR 03.44 Support of Teletex in a GSM PLMN
- TS 03.45 Transparent Fax
- TS 03.46 NonTransparent Fax
- TS 03.54 Shared Interworking Function
- TS 03.70 Routing of calls to/from Public Data Networks
- TS 04.21 Rate Adaptation on the MS-BSS Interface
- TS 04.22 Radio Link Protocol
- TS 07.01 General Terminal Adaptation Functions
- TS 07.02 Asynchronous Terminal Adaptation Functions
- TS 07.03 Synchronous Terminal Adaptation Functions
- TS 08.20 Rate Adaptation on the BSS-MSC Interface
- TS 09.04 Interworking between the PLMN and CSPDN
- TS 09.05 Interworking between the PLMN and PSPDN (PAD Access)
- TS 09.06 Interworking between the PLMN and ISDN/PSPDN (Packet Access)
- TS 09.07 Interworking between the PLMN and ISDN/PSTN